

SEQUENCE LISTING

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<120> HUMANIZED IMMUNOGLOBULIN REACTIVE WITH  
B7-2 AND METHODS OF TREATMENT THEREWITH

<130> GI-5315

<140> 09/249,011  
<141> 1999-02-12

<160> 20

<170> FastSEQ for Windows Version 3.0

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<212> DNA  
<213> Murine anti-B7-2 heavy chain

<220>  
<221> CDS  
<222> (1) ... (405)  
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<400> 1  
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Met Gly Trp Asn Cys Ile Ile Phe Phe Leu Val Thr Thr Ala Thr Gly  
1 5 10 15

48  
gtg cac tcc cag gtc cag ctg cag cag tct ggg cct gag ctg gtg agg  
Val His Ser Gln Val Gln Leu Gln Ser Gly Pro Glu Leu Val Arg  
20 25 30

96

cct ggg gaa tca gtg aag att tcc tgc aag ggt tcc ggc tac aca ttc	144
Pro Gly Glu Ser Val Lys Ile Ser Cys Lys Gly Ser Gly Tyr Thr Phe	
35 40 45	
act gat tat gct ata cag tgg gtg aag cag agt cat gca aag agt cta	192
Thr Asp Tyr Ala Ile Gln Trp Val Lys Gln Ser His Ala Lys Ser Leu	
50 55 60	
gag tgg att gga gtt att aat att tac tat gat aat aca aac tac aac	240
Glu Trp Ile Gly Val Ile Asn Ile Tyr Tyr Asp Asn Thr Asn Tyr Asn	
65 70 75 80	
cag aag ttt aag ggc aag gcc aca atg act gta gac aaa tcc tcc agc	288
Gln Lys Phe Lys Gly Lys Ala Thr Met Thr Val Asp Lys Ser Ser Ser	
85 90 95	
aca gcc tat atg gaa ctt gcc aga ttg aca tct gag gat tct gcc atc	336
Thr Ala Tyr Met Glu Leu Ala Arg Leu Thr Ser Glu Asp Ser Ala Ile	
100 105 110	
tat tac tgt gca aga gcg gcc tgg tat atg gac tac tgg ggt caa gga	384
Tyr Tyr Cys Ala Arg Ala Ala Trp Tyr Met Asp Tyr Trp Gly Gln Gly	
115 120 125	
acc tca gtc acc gtc tcc tca	405
Thr Ser Val Thr Val Ser Ser	
130 135	

<210> 2  
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 <212> PRT  
 <213> Murine anti-B7-2 heavy chain

<400> 2

Met Gly Trp Asn Cys Ile Ile Phe Phe Leu Val Thr Thr Ala Thr Gly	
1 5 10 15	
Val His Ser Gln Val Gln Leu Gln Gln Ser Gly Pro Glu Leu Val Arg	
20 25 30	
Pro Gly Glu Ser Val Lys Ile Ser Cys Lys Gly Ser Gly Tyr Thr Phe	
35 40 45	
Thr Asp Tyr Ala Ile Gln Trp Val Lys Gln Ser His Ala Lys Ser Leu	
50 55 60	
Glu Trp Ile Gly Val Ile Asn Ile Tyr Tyr Asp Asn Thr Asn Tyr Asn	
65 70 75 80	
Gln Lys Phe Lys Gly Lys Ala Thr Met Thr Val Asp Lys Ser Ser Ser	
85 90 95	
Thr Ala Tyr Met Glu Leu Ala Arg Leu Thr Ser Glu Asp Ser Ala Ile	
100 105 110	
Tyr Tyr Cys Ala Arg Ala Ala Trp Tyr Met Asp Tyr Trp Gly Gln Gly	
115 120 125	
Thr Ser Val Thr Val Ser Ser	
130 135	

<210> 3  
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 <213> Murine anti-B7-2 light chain

<220>  
 <221> CDS  
 <222> (1)...(396)

<400> 3

atg	gat	tca	cag	gcc	cag	gtt	ctt	ata	ttg	ctg	ctg	cta	tgg	gta	tct		48
Met	Asp	Ser	Gln	Ala	Gln	Val	Leu	Ile	Leu	Leu	Leu	Leu	Trp	Val	Ser		
1		5						10						15			

ggt acc tgt ggg gac att gtg ctg tca cag tct cca tcc tcc ctg gct

Gly	Thr	Cys	Gly	Asp	Ile	Val	Leu	Ser	Gln	Ser	Pro	Ser	Ser	Leu	Ala		96
20							25						30				

gtg tca gca gga gag aag gtc act atg agc tgc aaa tcc agt cag agt

Val	Ser	Ala	Gly	Glu	Lys	Val	Thr	Met	Ser	Cys	Lys	Ser	Ser	Gln	Ser		144
35							40					45					

ctg ctc aac agt aga acc cga gag aac tac ttg gct tgg tac cag cag

Leu	Leu	Asn	Ser	Arg	Thr	Arg	Glu	Asn	Tyr	Leu	Ala	Trp	Tyr	Gln	Gln		192
50							55				60						

aaa cca ggg cag tct cct aaa ctg ctg atc tac ttg gca tcc act agg

Lys	Pro	Gly	Gln	Ser	Pro	Lys	Leu	Leu	Ile	Tyr	Trp	Ala	Ser	Thr	Arg		240
65							70			75		80					

gaa tct ggg gtc cct gat cgc ttc aca ggc agt gga tct ggg aca gat

Glu	Ser	Gly	Val	Pro	Asp	Arg	Phe	Thr	Gly	Ser	Gly	Ser	Gly	Thr	Asp		288
85								90				95					

ttc act ctc acc atc agc agt gtg cag gct gaa gac ctg gca gtt tat

Phe	Thr	Leu	Thr	Ile	Ser	Ser	Val	Gln	Ala	Glu	Asp	Leu	Ala	Val	Tyr		336
100							105					110					

tac tgc acg caa tct tat aat ctt tac acg ttc gga ggg ggg acc aag

Tyr	Cys	Thr	Gln	Ser	Tyr	Asn	Leu	Tyr	Thr	Phe	Gly	Gly	Gly	Thr	Lys		384
115							120				125						

ctg gaa ata aaa

Leu	Glu	Ile	Lys														396
130																	

<210> 4  
 <211> 132  
 <212> PRT  
 <213> Murine anti-B7-2 light chain

<400> 4  
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 1 5 10 15  
 Gly Thr Cys Gly Asp Ile Val Leu Ser Gln Ser Pro Ser Ser Leu Ala  
 20 25 30  
 Val Ser Ala Gly Glu Lys Val Thr Met Ser Cys Lys Ser Ser Gln Ser  
 35 40 45  
 Leu Leu Asn Ser Arg Thr Arg Glu Asn Tyr Leu Ala Trp Tyr Gln Gln  
 50 55 60  
 Lys Pro Gly Gln Ser Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg  
 65 70 75 80  
 Glu Ser Gly Val Pro Asp Arg Phe Thr Gly Ser Gly Ser Gly Thr Asp  
 85 90 95  
 Phe Thr Leu Thr Ile Ser Ser Val Gln Ala Glu Asp Leu Ala Val Tyr  
 100 105 110  
 Tyr Cys Thr Gln Ser Tyr Asn Leu Tyr Thr Phe Gly Gly Gly Thr Lys  
 115 120 125  
 Leu Glu Ile Lys  
 130

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 <210> 5  
 <211> 405  
 <212> DNA  
 <213> Humanized murine anti-human B7-2 heavy chain  
  
 <220>  
 <221> CDS  
 <222> (1)...(405)

<400> 5  
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 Met Gly Trp Asn Cys Ile Ile Phe Phe Leu Val Thr Thr Ala Thr Gly  
 1 5 10 15  
  
 gtg cac tcc cag gtc cag ctg gtg cag tct ggg gct gag gtg aag aag 96  
 Val His Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys  
 20 25 30  
  
 cct ggg agc tca gtg aag gtg tcc tgc aaa gct tcc ggc tac aca ttc 144  
 Pro Gly Ser Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe  
 35 40 45  
  
 act gat tat gct ata cag tgg gtg aga cag gct cct gga cag ggc ctc 192  
 Thr Asp Tyr Ala Ile Gln Trp Val Arg Gln Ala Pro Gly Gln Gly Leu  
 50 55 60  
  
 gag tgg att gga gtt att aat att tac tat gat aat aca aac tac aac 240  
 Glu Trp Ile Gly Val Ile Asn Ile Tyr Tyr Asp Asn Thr Asn Tyr Asn  
 65 70 75 80  
  
 cag aag ttt aag ggc aag gcc aca atg act gta gac aag tcg acg agc 288  
 Gln Lys Phe Lys Gly Lys Ala Thr Met Thr Val Asp Lys Ser Thr Ser  
 85 90 95

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aca gcc tat atg gaa ctt agt tct ttg aga tct gag gat acg gcc gtt 336
Thr Ala Tyr Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val
100          105          110

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tat tac tgt gca aga gcg gcc tgg tat atg gac tac tgg ggt caa ggt 384  
 Tyr Tyr Cys Ala Arg Ala Ala Trp Tyr Met Asp Tyr Trp Gly Gln Gly  
 115 120 125

acc ctt gtc acc gtc tcc tca 405  
Thr Leu Val Thr Val Ser Ser  
130 135

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.<210> 6
<211> 135
<212> PRT
<213> Humanized murine anti-human B7-2 heavy chain
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<400> 6
Met Gly Trp Asn Cys Ile Ile Phe Phe Leu Val Thr Thr Ala Thr Gly
 1           5           10           15
Val His Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys
 20          25           30
Pro Gly Ser Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe
 35          40           45
Thr Asp Tyr Ala Ile Gln Trp Val Arg Gln Ala Pro Gly Gln Gly Leu
 50          55           60
Glu Trp Ile Gly Val Ile Asn Ile Tyr Tyr Asp Asn Thr Asn Tyr Asn
 65          70           75           80
Gln Lys Phe Lys Gly Lys Ala Thr Met Thr Val Asp Lys Ser Thr Ser
 85          90           95
Thr Ala Tyr Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val
100          105          110
Tyr Tyr Cys Ala Arg Ala Ala Trp Tyr Met Asp Tyr Trp Gly Gln Gly
115          120          125
Thr Leu Val Thr Val Ser Ser
130          135

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<210> 7
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<212> DNA
<213> Humanized murine anti-human B7-2 light chain
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<220>  
<221> CDS  
<222> (1) . . . (396)

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<400> 7
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 1           5           10          15

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D E C E N T I O N 2 0

ggc acc tgt ggg gac att gtg ctg aca cag tct cca gat tcc ctg gct Gly Thr Cys Gly Asp Ile Val Leu Thr Gln Ser Pro Asp Ser Leu Ala 20 25 30	96
gta agc tta gga gag agg gcc act att agc tgc aaa tcc agt cag agt Val Ser Leu Gly Glu Arg Ala Thr Ile Ser Cys Lys Ser Ser Gln Ser 35 40 45	144
ctg ctc aac agt aga acc cga gag aac tac ttg gct tgg tac cag cag Leu Leu Asn Ser Arg Thr Arg Glu Asn Tyr Leu Ala Trp Tyr Gln Gln 50 55 60	192
aaa cca ggg cag cct cct aaa ctg ctg atc tac tgg gca tcc act agg Lys Pro Gly Gln Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg 65 70 75 80	240
gaa tct ggg gtc cct gat cgc ttc agt ggc agt gga tct ggg aca gat Glu Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Gly Thr Asp 85 90 95	288
ttc act ctc acc atc agc agt ctg cag gct gaa gac gtg gca gtt tat Phe Thr Leu Thr Ile Ser Ser Leu Gln Ala Glu Asp Val Ala Val Tyr 100 105 110	336
tac tgc acg caa tct tat aat ctt tac acg ttc gga cag ggg acc aag Tyr Cys Thr Gln Ser Tyr Asn Leu Tyr Thr Phe Gly Gln Gly Thr Lys 115 120 125	384
gtg gaa ata aaa Val Glu Ile Lys 130	396
<210> 8 <211> 132 <212> PRT <213> Humanized murine anti-human B7-2 light chain	
<400> 8 Met Asp Ser Gln Ala Gln Val Leu Ile Leu Leu Leu Trp Val Ser 1 5 10 15 Gly Thr Cys Gly Asp Ile Val Leu Thr Gln Ser Pro Asp Ser Leu Ala 20 25 30 Val Ser Leu Gly Glu Arg Ala Thr Ile Ser Cys Lys Ser Ser Gln Ser 35 40 45 Leu Leu Asn Ser Arg Thr Arg Glu Asn Tyr Leu Ala Trp Tyr Gln Gln 50 55 60 Lys Pro Gly Gln Pro Pro Lys Leu Leu Ile Tyr Trp Ala Ser Thr Arg 65 70 75 80 Glu Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp 85 90 95 Phe Thr Leu Thr Ile Ser Ser Leu Gln Ala Glu Asp Val Ala Val Tyr 100 105 110	

Tyr Cys Thr Gln Ser Tyr Asn Leu Tyr Thr Phe Gly Gln Gly Thr Lys  
 115 120 125  
 Val Glu Ile Lys  
 130

<210> 9  
 <211> 15  
 <212> DNA  
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<220>  
 <223> CDR1 of humanized murine anti-human B7-2 heavy  
 chain

<221> CDS  
 <222> (1)...(15)

<400> 9  
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 Asp Tyr Ala Ile Gln  
 1 5

<210> 10  
 <211> 5  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> CDR1 of humanized murine anti-human B7-2 heavy  
 chain

<400> 10  
 Asp Tyr Ala Ile Gln  
 1 5

<210> 11  
 <211> 51  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> CDR2 of humanized murine anti-human B7-2 heavy  
 chain

<221> CDS  
 <222> (1)...(51)

<400> 11  
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 Val Ile Asn Ile Tyr Tyr Asp Asn Thr Asn Tyr Asn Gln Lys Phe Lys  
 1 5 10 15

ggc 51  
 Gly

<210> 12  
 <211> 17  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> CDR2 of humanized murine anti-human B7-2 heavy chain  
  
 <400> 12  
 Val Ile Asn Ile Tyr Tyr Asp Asn Thr Asn Tyr Asn Gln Lys Phe Lys  
 1 5 10 15  
 Gly

<210> 13  
 <211> 21  
 <212> DNA  
 <213> Artificial Sequence  
  
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 <223> CDR3 of humanized murine anti-human B7-2 heavy chain  
  
 <221> CDS  
 <222> (1)...(21)  
  
 <400> 13  
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 Ala Ala Trp Tyr Met Asp Tyr  
 1 5

<210> 14  
 <211> 7  
 <212> PRT  
 <213> Artificial Sequence  
  
 <220>  
 <223> CDR3 of humanized murine anti-human B7-2 heavy chain  
  
 <400> 14

Ala Ala Trp Tyr Met Asp Tyr  
 1 5

<210> 15  
 <211> 51  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> CDR1 of humanized murine anti-human B7-2 light chain

<221> CDS  
 <222> (1)...(51)

<400> 15  
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 1 5 10 15

gct 51  
 Ala

<210> 16  
 <211> 17  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> CDR1 of humanized murine anti-human B7-2 light  
 chain

<400> 16  
 Lys Ser Ser Gln Ser Leu Leu Asn Ser Arg Thr Arg Glu Asn Tyr Leu  
 1 5 10 15  
 Ala

<210> 17  
 <211> 21  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> CDR2 of humanized murine anti-human B7-2 light  
 chain

<221> CDS  
 <222> (1)...(21)

<400> 17  
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 Trp Ala Ser Thr Arg Glu Ser  
 1 5

<210> 18  
 <211> 7  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> CDR2 of humanized murine anti-human B7-2 light  
 chain

<400> 18  
Trp Ala Ser Thr Arg Glu Ser  
1 5

<210> 19  
<211> 24  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> CDR3 of humanized murine anti-human B7-2 light  
chain

<221> CDS  
<222> (1)...(24)

<400> 19  
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Thr Gln Ser Tyr Asn Leu Tyr Thr  
1 5

24

<210> 20  
<211> 8  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> CDR3 of humanized murine anti-human B7-2 light  
chain

<400> 20  
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1 5